IN THE CLAIMS

Please cancel Claims 13-30 (erroneously numbered in the prior action as 13-27) without prejudice, and add new Claims 31-56 as follows:

1. (Original) A method of transmitting data across a communication medium to a receiving side, the communication medium using a transmission implementation, the method comprising:

if data to be transmitted can be encoded as groups of bits, each group having a first subgroup of critical information and a second subgroup of less critical information, and if the transmission implementation groups information into transmission quanta having equal numbers of bits and has the property that each transmission quantum can be reported on the receiving side as having been received correctly, or in which a transmission error is detected, then:

encoding the data to be transmitted, the encoding replicating the critical information and separating the replicated, critical information by a number of bits from the second subgroup, the number of bits equal to at least one less than the number of bits in the transmission quantum; and

transmitting the encoded data over the network to the receiving side.

2. (Original) The method of claim 1, wherein the second subgroup contains padding bits that adapt the first subgroup and second subgroup to have a total number of bits required by the transmission quantum.

3. (Original) The method of claim 2, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the control field is followed by the padding bits.

4. (Original) The method of claim 2, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the padding bits are followed by the control field.

5. (Original) The method of claim 1, wherein the critical information is represented by a pair of identical bits, each of the identical bits separated by the second subgroup of bits.

6. (Original) The method of claim 1, wherein the critical information is represented by two pluralities of bits, the two pluralities of bits being identical to each other, the two pluralities separated by the second subgroup of bits.

7. (Original) A method of transmitting data across a communication medium to a receiving side, the communication medium using a transmission implementation, the method comprising:

if data to be transmitted can be encoded as groups of bits, each group having a first subgroup of critical information and a second subgroup of less critical information, and if the transmission implementation groups information into transmission quanta having equal numbers of bits and has the property that each transmission quantum can be reported on the receiving side as having been received correctly, or in which a transmission error is detected, and if the groups of bits and the transmission quanta have sizes that are multiples of 2 and that a start of a transmission quantum always aligns with an even-encoded bit in a group of bits, then:

encoding the data to be transmitted, the encoding replicating the critical information and separating the replicated, critical-information by a number of bits from the second subgroup, the number of bits equal to at least two less than the
number of bits in the transmission quantum; and

transmitting the encoded data over the network to the receiving side.

8. (Original) The method of claim 7, wherein the second subgroup contains padding bits that adapt the first subgroup and second subgroup to have a total number of bits required by the transmission quantum.

9. (Original) The method of claim 7, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the control field is followed by the padding bits.

10. (Original) The method of claim 9, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the padding bits are followed by the control field.

11. (Original) The method of claim 7, wherein the critical information is represented by a pair of identical bits, each of the identical bits separated by the second subgroup of bits.

12. (Original) The method of claim 7, wherein the critical information is represented by two pluralities of bits, the two pluralities of bits being identical to each other, the two pluralities separated by the second subgroup of bits.

13. – 27. (Canceled)

[[25.]] <u>28.</u> (Canceled)

[[26.]] 29. (Canceled)

[[27.]] 30. (Canceled)

31. (New) A method of transmitting data across a communication medium to a receiving side comprising:

receiving at said receiving side a symbol comprising a plurality of bits;

reading the most significant bit and the least significant bit of said symbol; and

determining a symbol type based at least on said reading.

32. (New) The method of claim 31, wherein the symbol is constructed with its most significant bit identical to its least significant bit.

33. (New) The method of claim 32, further comprising generating an error if the most significant bit is different than the least significant bit.

34. (New) The method of claim 32, wherein the symbol type corresponds to either a first type or a second type.

35. (New) The method of claim 34, wherein if a high bit comprises the most significant bit and at the least significant bit of the symbol, the symbol type corresponds to the first type, and if a low bit comprises the most significant bit and at the least significant bit of the symbol, the symbol type corresponds to the second type.

36. (New) The method of claim 35, further comprising:

reading additional bits comprised within the symbol; and

determining a symbol subtype based at least in part upon the reading of additional bits.

37. (New) The method of claim 36, wherein said acts of reading additional bits and determining a symbol subtype are performed only when the symbol type corresponds to the first type.

38. (New) The method of claim 36, wherein said determining a symbol subtype is based at least in part upon a value appearing at the bit adjacent to the most significant bit and a value appearing at the bit adjacent to the least significant bit of said symbol.

39. (New) The method of claim 36, wherein said determining a symbol subtype is based at least in part upon at least five bits, said at least five bits not including the most significant bit, and the least significant bit of the symbol.

40. (New) The method of claim 31, further comprising generating an error if the most significant bit is different than the least significant bit.

41. (New) An apparatus for use in receiving data transmitted across a communication medium, comprising:

a first module adapted to receive a symbol comprising a plurality of bits;

a second module in data communication with said first module and adapted to read the most significant bit and the least significant bit of said symbol; and

a third module adapted to determine a symbol type based on the reading of the second module.

42. (New) The apparatus of claim 41, wherein the symbol is constructed with its most significant bit identical to its least significant bit.

43. (New) The apparatus of claim 42 further comprising an error generator adapted to generate an error if the most significant bit is different than the least significant bit.

44. (New) The apparatus of claim 42, wherein the symbol type corresponds to either a first type or a second type.

45. (New) The apparatus of claim 44, wherein if a high bit comprises the most significant bit and at the least significant bit of the symbol, the symbol type corresponds to the first type, and if a low bit comprises the most significant bit and at the least significant bit of the symbol, the symbol type corresponds to the second type.

46. (New) The apparatus of claim 45, further comprising:

a fourth module adapted to read additional bits comprised within the symbol;

a fifth module adapted to determine a symbol subtype based at least in part upon the reading of additional bits by the fourth module.

47. (New) The apparatus of claim 46, wherein the fourth module and the fifth module are adapted to operate only when the symbol type corresponds to the first type.

48. (New) The apparatus of claim 46, wherein the fifth module is adapted to determine a symbol subtype based at least in part upon the value appearing at the bit adjacent to the most significant bit and the value appearing at the bit adjacent to the least significant bit of said symbol.

49. (New) The apparatus of claim 46, wherein the fifth module is adapted to determine a symbol subtype based at least in part upon five bits other than the most significant bit and the least significant bit of the symbol.

50. (New) A method of transmitting data across a communication medium from a transmitting side to a receiving side, the method comprising:

encoding data to be transmitted as groups of bits, each group having a first subgroup and a second subgroup; and

grouping information into a plurality of transmission elements having equal numbers of bits;

determining, at the receiving side, whether each transmission element has been received correctly; or

where a transmission error is detected, then causing the transmitting side to:

replicate one of the first or second subgroups; and

separate the replicated subgroup by at least one bit from the other non-replicated subgroup.

51. (New) The method of claim 50, wherein the at least one bit comprises a number of bits equal to at least one less than the number of bits in the transmission element.

52. (New) The method of claim 50, wherein the second subgroup contains padding bits that adapt the first subgroup and second subgroup to have a total number of bits required by the transmission element.

53. (New) The method of claim 52, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the control field is followed by the padding bits.

54. (New) The method of claim 52, wherein the second subgroup contains a control field, the control field located within the second subgroup such that the padding bits are followed by the control field.

55. (New) The method of claim 51, wherein the first subgroup comprises critical information represented by a pair of bits, each of the bits separated by the second subgroup of bits.

56. (New) The method of claim 51, wherein the first subgroup comprises critical information represented by two pluralities of bits, the two pluralities of bits being identical to each other, the two pluralities separated by the second subgroup of bits.